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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/406,979	09/28/1999	KEVIN E. BREHMER	Z2002-700719	2142

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EXAMINER
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MISLEH, JUSTIN P

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/406,979

Applicant(s)

BREHMER ET AL.

Examiner

Justin P. Misleh

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10, 14 - 20, 23 - 35, 37, and 38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10, 14 - 20, and 23 - 35 is/are allowed.
- 6) ☒ Claim(s) 37 and 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed December 2<sup>3</sup>~~9~~, 2005 have been fully considered but they are not persuasive; however, Applicant's arguments with respect to newly added Claim 38 have been considered but are moot in view of the new ground of rejection.
2. Applicant argues, "the memory 36 of MacLean does not hold the sequence of 'a sample of the photo signal representative of incident light intensity and a sample of the photo signal representative of a reference black level' as recited by the claim.
3. The Examiner respectfully disagrees with Applicant's position. Claim 37 is written broadly enough such that it does not specifically require a single physical storage element that alternatively stores a sample of the photo signal and a sample of the reference black level. In other words, Claim 37 does not require only one storage element that stores both the photo signal and the reference black level in a alternating time sequence. Rather, Claim 37 is written broadly enough such that one storage element must store the photo signal and one storage element must that store the reference black level and that the photo signal and reference black signal must be alternatively sampled and stored in a time sequence. Claim 37 simply prohibits the photo signal from being stored on a plurality of storage elements and equally prohibits the reference black level from also being stored on a plurality of storage elements.
4. Therefore, in regards to MacLean, column 3 (line 66) – column 4 (line 31) and figure 4 indicate that the memory 36 stores the photo signal and the frame store 40 stores the reference black level. Furthermore, figure 5, which describes the flow throughout figure 4, clearly gives

31606

Art Unit: 2612

indication that the photo signal and the reference black signal are alternatively sampled and stored in a time sequence.

5. Finally, Applicant is concerned that MacLean's figure 4 describes an electronic camera and does not describe a sample and hold circuit, as required by the claim language, because there is no mention or discussion of a sample and hold function therein. The Examiner respectfully disagrees with Applicant's position. MacLean's figure 5, which shows the operation of figure 4, clearly shows how the electronic camera has sample and hold functionality (also see column 4, lines 31 – 54).

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claim 37** is rejected under 35 U.S.C. 102(e) as being anticipated by MacLean.

8. For **Claim 37**, MacLean discloses, as shown in figures 2 and 4 and as stated in column 1 (lines 47 – 65), a sampling circuit for an image sensor including a photosensitive component having a terminal carrying a photo signal alternately representative of incident light intensity and representative of a reference block intensity, comprising:

Art Unit: 2612

a sample and hold circuit (ALL of figure 4) having an input coupled to receive the photo signal and which alternately samples and holds on one storage element (memory 36) in a time sequence (see figure 2), a sample of the photo signal representative of incident light intensity (Image frames 1a, 1b, and 1c) and a sample of the photo signal representative of a reference block level (Dark frames 2a, 2b, and 2c); and

an output circuit (ALL of figure 4) which computes a difference between sequential input signals (CI 3a, 3b, and 3c), having an input coupled to receive from the sample and hold the time sequence of samples and having an output representative of a difference between the incident light intensity and the reference black level (see column 3, lines 57 – 67).

9. **Claim 38** is rejected under 35 U.S.C. 102(e) as being anticipated by Wayne.

10. For **Claim 38**, Wayne discloses, as shown in figures 2 and 3 and as stated in column 3 (line 13) – column 4 (line 37), a method of improving a photo signal output of an image sensor, comprising: sampling and holding on a storage element (C1 – see figure 2) the photo signal output at a first time, when the photo signal output represents incident light intensity (Phase 1 – see figure 3); sampling and holding on the storage element (C1 – see figure 2) the photo signal output at a second time, when the photo signal output represents a reference black level (Phase 2 – see figure 3); and computing the improved photo signal output as a difference between the sampled and held photo signal output at the first time and the sampled and held photo signal output at the second time (see column 4, lines 29 – 37).

*Allowable Subject Matter*

11. **Claims 10, 14 – 20 and 23 – 35** are allowed.
12. The following is a statement of reasons for the indication of allowable subject matter:
  - For **Independent Claims 10, 20, 29, and 30**, the closest prior art teaches, in the very least, an image sensing circuit comprising a plurality of pixels each having a photosensitive element and a differential input pair amplifier circuit, wherein a first input of the amplifier circuit is coupled to the output of the photosensitive element and an output of the amplifier circuit is coupled to an input of a correlated double sampling (CDS) circuit such that a feedback path is formed between the input of the CDS circuit to a second input of the amplifier circuit.

However, the closest prior art does not teach or fairly suggest wherein the CDS circuit is coupled within the amplifier feedback loop, wherein the CDS circuit comprises a sample and hold circuit, such that the output of the sample and hold circuit is fed back to the second input of the differential input pair of the amplifier circuit and the output of the sample and hold circuit is also coupled to an input of a subsequent clamping circuit.

- For **Independent Claims 16, 25, and 34**, the closest prior art teaches, in the very least, several different embodiments including a sampling circuit for an image sensing circuit having a photosensitive element, wherein the sampling circuit comprises a feedback loop amplifier circuit having an output from the photosensitive elements as input; and a clamping circuit coupled to receive an output from the feedback loop amplifier circuit and produce an output signal representing a double correlated sample voltage difference at the output, wherein said clamping circuit comprises an auto-zero amplifier circuit with a feedback loop which includes a first

Art Unit: 2612

capacitive storage element coupled in parallel with a switching element controlled by a clamp signal.

However, the closest prior art does not teach or fairly suggest wherein the amplifier circuit of the clamping circuit has a first input coupled to a reference voltage and a second input coupled by way of a second capacitive element to receive said output from the feedback loop amplifier, and wherein said clamping circuit is controlled by a clamp signal such that in a first state the output of the clamping circuit amplifier is fixed by said reference voltage and in a second state the clamping circuit output changes in accordance with said feedback loop amplifier output from a baseline of the fixed reference voltage output.

### *Conclusion*

13. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Justin P Misleh whose telephone number is 571.272.7313. The Examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David L Ometz can be reached on 571.272.7593. The fax phone number for the organization where this application or proceeding is assigned is 571.273.3000.

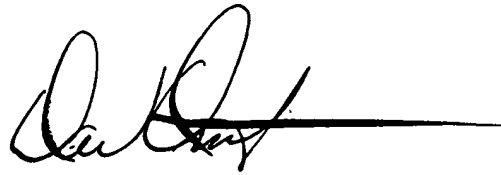
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2612

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM

March 3, 2006

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal line extending to the right.

DAVID OMETZ  
SUPERVISORY PATENT EXAMINER